EPA Reg Jacket 68250-1, Vol. 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

Ms. Abigail Downs
Regulatory Consultant for,
c/o Liquitech, Inc.
Technologies Sciences Group, Inc.
1150 18th Street, NW, Suite 1000
Washington, D.C. 20036

JUL 31 2014

Subject: Liquidator Electronic Liquid Disinfectant System
EPA Registration Number 68250-1
Your Amendment Dated May 6, 2014
EPA Received Date May 6, 2014

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, FIFRA, as amended, to add additional optional label claims and to remove the existing Operation and Installation Manual and to replace it with an abbreviated Technical Data Sheet titled, "Essential System Service", is unacceptable.

Upon reviewing the labeling language the following claims must be deleted:

"...the device provides effective control of Legionella [pneumophila]{ATCC 33153}..."

"has efficacy data on file with the EPA demonstrating the control of Legionella in potable water systems. Liquitech systems are compliant with the US EPA regulations and policy including the Office of Water, the Safe Drinking Water Act (40 CRF 141) and the Office of Pesticides." The preliminary laboratory tests on file do not merit such a definitive statement. Claims such as this must be qualified by mentioning or incorporating the supporting efficacy data: "In preliminary laboratory tests Liquitech Products has been shown to inactivate pure cultures of LDB." Also, the second sentence implies that since the product is in compliance with the US EPA regulations and policy including the Office of Water, the product must be the best product in controlling the Legionella organism in water systems. This claim is false and misleading.

"According to the EPA Legionella: Human Health Criteria Document, copper-silver ionization systems, along with other measures, are very useful in preventing the recolonization of Legionella in most water distribution systems." This claim implies that according to EPA's document, this product is very useful in preventing recolonization of Legionella in most water distribution systems. However, the document does not recommend or endorse any specific product. Liquidtech had to submit efficacy data to support the product labeling claims.

"All Liquitech systems are manufactured in the USA, which means they embody a higher standard of certification and demonstrate proven efficacy against Legionella." This claim implies that the location of manufacturing this product ensures that the product works better any other similar product. This is a false and misleading claim. The manufacturing locations does NOT ensure how well the product work. Acceptable efficacy data is only way to substantiate the efficacy claims that appear on the product labeling.

"Effective against *Legionella sp (ATCC 33153).*" The preliminary laboratory tests on file do not merit such a definitive statement. Claims such as this must be qualified by mentioning or incorporating the supporting efficacy data: "In preliminary laboratory tests Liquitech Products has been shown to inactivate pure cultures of LDB."

"Effective against [preventing, controlling] *Legionella.*" The preliminary laboratory tests on file do not merit such a definitive statement.

"It is this protection that makes the Liquidator system superior." It implies that this system is the best in controlling public health organisms in this type of system.

"LiquiTech Systems provide protection." Ambiguous and potentially misleading.

"Legionella are killed rather than suppressed." It implies that this product has a 100 % kill rate.

"LiquiTech's technology provides a proven solution with a 15-year track record." This implies that this product has been effective against its current target pest for this period of time. EPA has no information to substantiate this claim.

"Patented Technology capable of handling any water conditions." This is a misleading and false claim. This implies that this product can be used on raw, untreated water systems. At the time of registration, this product is not to be used on raw water system. The product labeling states, "This product is a secondary treatment for potable water, and is unacceptable for disinfecting sewage, raw or grey water."

"[Prevents, controls] [*Legionella pneumophila*] in both hot and cold water. The accurate dose rate control system maintains precise ions levels, providing protection and [prevention] of recontamination." The preliminary laboratory tests on file do not merit such a definitive statement.

"The LiquiTech patented technology is an effective method of controlling [*Legionella*] in water systems." The preliminary laboratory tests on file do not merit such a definitive statement.

"The LiquiTech system, coupled with engineering and customer satisfaction staff, clearly makes it an effective method of controlling [*Legionella*] in domestic water distribution systems." The preliminary laboratory tests on file do not merit such a definitive statement.

The LiquiTech electronic copper/silver ionization process is an effective method of controlling [*Legionella*] in domestic water distribution systems." The preliminary laboratory tests on file do not merit such a definitive statement.

"The system's efficacy is validated by continuous management and adjustment as well as periodic independent laboratory water sample testing." The preliminary laboratory tests on file do not merit such a definitive statement.

"This product is intended for the purification of water which has previously been treated in accordance with the Safe Drinking Water (SDWA), such as that provided by municipal water treatment facilities." This claim is considered false and misleading. This product is registered to control legionella, which does not equate to it being a "purifier."

"Establishing a flushing protocol is a critical component of any water disinfection management protocol." This claim is false and misleading. It is potentially misleading for this product label to comment on the "critical components" of other water disinfection management protocols.

"Liquidtech strives to redefine American quality and expertise by developing superior technology. Periodic testing ensures that [this product] maintains copper and silver levels within with Primary and Secondary Drinking Water Regulations in accordance with the Safe Drinking Water Act." This claims is false and misleading. It implies that the product is the better than similar products.

Resubmit revised product labeling incorporating the revisions mentioned to the Agency for our review.

Should you have any questions concerning this letter, please contact Karen M. Leavy at (703)-308-6237.

Sincerely,

Acting Product Manager 33
Regulatory Management Branch I
Antimicrobial Division(7510C)

{MASTER LABEL}

LIQUIDATOR®
Electronic Ionization System

In preliminary laboratory tests, [this product] [LIQUIDATOR® Electronic Ionization System] Liquitech Products has been shown to inactivate pure cultures of LDB. However, the ability of this formulation to control the growth of, or inactivate, LDB in operating water systems exposed to ultraviolet light, organic material, other microbial contamination, and aeration, has not been documented in a field setting. These preliminary findings also do not address the problem of long-term preventive maintenance of these water systems. **This product is a secondary treatment for potable water, and is unacceptable for disinfecting sewage, raw or grey water.**

Active Ingredients:

Copper (as metallic).....	70.00%
Silver (as metallic).....	30.00%
Total:.....	100.00%

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE [BACK, SIDE, REAR] PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

Manufactured by:
LiquiTech, Inc.
421 Eisenhower Lane South
Lombard, IL 60148
(800) 635-7873
Telephone (800) 635-7873 (24 hours per day, 7 days a week, 365 days a year)Website:
www.liquitech.net

EPA Reg. No. 68250-XXX
EPA Est. No. 68250-IL-001

Net Weight:

PRECAUTIONARY STATEMENTS
Do not allow contamination of water by cleaning of equipment or disposal of waste.

DIRECTIONS FOR USE
It is a violation of federal law to use this product in a manner inconsistent with its labeling.

When used as directed, this device provides effective control of *Legionella [pneumophila] (ATCC 33153)* in commercial potable water supplies. This device consists of a flow cell containing copper and silver electrodes that releases copper and silver ions into the water when electrically stimulated by a companion electronic controller that continually senses water flow rate and consumption in the water system. See *Essential System Service* sheet for additional use directions.

Copper Testing

Weekly Copper Testing

Once the Liquidator® Electronic Ionization System has been fully commissioned, the level of copper in the water at designated sample sites before peak water consumption has begun should have a targeted level of 0.4 PPM copper, resulting in a target level of 40 PPB silver. These levels are optimal for controlling *Legionella (ATCC 33153).*

The actual copper to silver ratio may vary depending on water chemistry, ambient or transient copper in the water supply, and other conditions. To ensure that proper copper levels are being maintained, the water should be tested at least once each week, preferably early in the morning before water consumption has begun. A log sheet is provided in the back of this manual to help you track and record test results.

Testing Copper Levels

A Copper Test Kit is supplied with each Liquidator® Electronic Ionization System. The kit is designed to measure copper levels between 0 and 5.0 PPM (parts-per-million).

Testing Tips

- Samples should always be collected in a clean glass or polyethylene bottle.
- Samples should be analyzed as soon as possible after collection.
- Discard tubes that are badly scratched.
- Observe the one year shelf life recommendations for the testing reagent (see *Copper Reagent Shelf Life* section below).
- Protect the reagent and other test kit components from sunlight, extreme heat, and extreme cold. The entire kit is best stored in a drawer or cabinet at normal room temperature (65° to 75°F).
- Never put wet tubes in the colorimeter.

Testing

1. Collect a 50 ml sample in the Water Sample Collecting Bottle.
2. Rinse a Colorimeter Tube with sample water.
3. Fill the rinsed Colorimeter Tube to the 10 ml line with the sample water. Cap and wipe dry.

4. Insert the filled Colorimeter Tube into the Colorimeter's light chamber, being sure to align the index line with the arrow on the meter. Close the lid. This tube is the blank zero.
5. Push the "Read" button to turn the meter on. Press the "Zero" button and hold it for two seconds until "bLA" is displayed. Release the button to take a zero reading (0 PPM)
6. Remove the Colorimeter Tube and add 5 drops of Copper Reagent.
7. Cap the tube and invert to mix. Wipe tube dry.
8. Insert the Colorimeter Tube into the Colorimeter's light chamber, being sure to align the index line with the arrow on the meter. Close the lid.
9. Push the "Read" button. Record the results as PPM copper on the log sheet.

➧ **NOTE:** *If the test reading displays Er2, copper levels are above 5 PPM. Repeat the procedure on a diluted sample and multiply the result by the appropriate dilution factor. See the DC-1200 Colorimeter Instruction Manual for more information.*

Copper Reagent Shelf Life

The Copper Reagent supplied with your test kit has a shelf life of approximately one year. You can determine the production date of the reagent by looking at the six digit lot number on the label of the bottle. The first two numbers are the week of production; the third number year of production.

➧ **EXAMPLE:** *Lot #457126 has a production date of the 45th week ("45") and a production year of 2007 ("7"). Therefore, the reagent should be used by the 45th week of 2008 (approximately November 2008)*

➧ **IMPORTANT:** *There are no visible indications when the reagent gets too old or has deteriorated. However, test results using reagent that is past the recommended shelf life may show a lower copper level than is actually present.*

STORAGE AND DISPOSAL

PESTICIDE STORAGE: Store the flow cell in a cool, dry place away from children.
PESTICIDE DISPOSAL: Non-reusable product. When spent, do not attempt to disassemble, recharge, or refill flow cells. Return spent flow cells to LiquiTech, Inc. for reconditioning and recycling.

LIMITED WARRANTY AND DISCLAIMER

[The directions for use of this product are believed to be adequate and must be followed carefully, but it is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result due to such factors as power or utility interruption, incorrect use or application, or water stagnation, all of which are beyond the control of LiquiTech Inc.

LiquiTech customers will develop a flushing protocol and create supporting log sheets for documentation and reporting.

To the extent consistent with applicable law, LiquiTech, Inc., the manufacturer, or the seller of this product shall not be liable for consequential, special, or indirect damages resulting from the use, handling, application, storage, or disposal of this product or for damages in the nature of penalties, and the buyer and the user waive any right that they may have to such damages.

No agent or employee of LiquiTech, Inc., or the seller is authorized to amend the terms of this warranty disclaimer or the product's label or to make a presentation or recommendation different from or inconsistent with the approved label of this product.

The system is warranted for five years against defects in manufacturing, workmanship, and materials when installed and maintained in accordance with the manufacturer's recommendations. Only approved

LiquiTech parts can be used in order not to void both LiquiTech warranty and EPA product registration required by law.]

OR

[The system is warranted for five years against defects in manufacturing, workmanship, and materials when installed and maintained in accordance with the manufacturer's recommendations.

Only approved LIQUITECH® parts can be used in order not to void both LiquiTech warranty and EPA product registration required by law.]

NOTICE TO BUYER

Purchase of this product does not confer any rights under U.S. Patent Nos. 6,126,820 and 6,325,944, and other pending patent applications governing this product or the use thereof in countries outside of the United States.

Made In USA

Liquitech Equipment Global Certification & Approvals

The entire *LIQUITECH®* electronic [ionization] system including control module, flow cell and interconnecting wire are ETL (UL-508 and 1081) certified and CSA C22.2 No. 14-95 and 108-M89 certified. *LIQUITECH®* products conform to the European Union EMC Directive 89/336/EEC and Low Voltage Directive 72/23/EEC and bear the CE Mark. All *LIQUITECH®* flow cell wetted parts are NSF Standard 61 approved. Liquitech products are protected by U.S. Patent Nos. 6, 136, 820 and 6,325,944, and toehr pending patent applications. Liquitech Copper-Silver Alloy electrodes and associated equipment comply with all conditions and requirements as contained in BRL K14010-2/01 (Assessment The Kiwa certificate with product certificate for *Legionella* with alternate Techniques, Part 2: Electrochemical Techniques: copper/silver and anodic oxidation). CTGB *Legionella* Control Certification number 13431 N.

The entire system, electronic control unit, flow cells, and interconnecting wire are ETL (UL-1081 and UL-508), and CSA C22.2 Nos. 14-95 and 108-M89 certified.

LiquiTech's copper silver ionization system is EPA registered and has efficacy data on file with the EPA demonstrating the control of *Legionella* in potable water systems. Liquitech systems are compliant with the US EPA regulations and policy including the Office of Water, the Safe Drinking Water Act (40 CFR 141), and the Office of Pesticides.

[OPTIONAL LABEL CLAIMS]

- According to the EPA *Legionella: Human Health Criteria Document*, copper-silver ionization systems, along with other measures, are very useful in preventing the recolonization of *Legionella* in most water distribution systems.
- All Liquitech systems are manufactured in the USA, which means they embody a higher standard of certification and demonstrate proven efficacy against *Legionella*.
- "Closed Loop Proportional Control" technology capable of adjusting itself to produce the precise amount of ionization needed and ensures no under or over ionization.
- Control mode allows you to program the system to automatically change output current on different days and time periods.
- Effective against *Legionella sp (ATCC 33153)*.
- Effective against [preventing, controlling] *Legionella*.
- Effectively controls [*Legionella*] with an absolute minimum of attention and maintenance.
- Intended for use in hospitals, healthcare facilities, nursing homes, hotel and commercial buildings.
- It is this protection that makes the Liquidator® system superior
- *Legionella* are killed rather than suppressed.
- Liquid [ionization] system.
- *LIQUITECH*® systems provide protection.
- *LIQUITECH'S* ionization system maintains consistent levels, providing protection and prevention of contamination.
- LiquiTech, Inc.'s technology provides a proven solution with a 15-year track record.
- Liquitech strives to redefine American quality and expertise by developing superior technology.
- Periodic testing ensures that [this product] maintains copper and silver levels within with Primary and Secondary Drinking Water Regulations in accordance with the Safe Drinking Water Act.
- Patented Technology capable of handling any water conditions.
- [Prevents, controls] [*Legionella pneumophila*] in both hot and cold water. The accurate dose rate control system maintains precise ions levels, providingprotection and [prevention] of recontamination.
- The [biocidal] action is attributable to the positively charged copper and silver ions.
- The electronic control units incorporate remote management and control previously stated adjustment capabilities.
- The ion emissions of the Liquidator® ionization process are cationic, surface active, and a potent biocide.
- The *LIQUITECH*® patented technology is an effective method of controlling [*Legionella*] in water systems.
- The *LIQUITECH*® system, coupled with engineering and customer satisfaction staff, clearly makes it an effective method of controlling [*Legionella*] in domestic water distribution systems.
- The *LIQUITECH*® electronic copper/silver ionization process is an effective method of controlling [*Legionella*] in domestic water distribution systems.

- The key to the system is the controlled release of copper and silver ions into the domestic water distribution system.
- The system's efficacy is validated by continuous management and adjustment as well as periodic independent laboratory water sample testing.
- The rate at which these ions are released is monitored and maintained by the controller's built in microcomputer which is monitored remotely over the internet.
- These ionic emissions are cationic, surface-active, and a potent biocide.
- This product is intended for the purification of water which has previously been treated in accordance with the Safe Drinking Water Act (SDWA), such as that provided by municipal water treatment facilities.

***LIQUITECH*® LIQUIDATOR® Series Electronic Controller Unit**

***LIQUITECH*® Model QLTF Flow Cell**

LIQUITECH

ENVIRONMENTAL SOLUTIONS

Essential System Service

Weekly

Handheld Copper Testing

Using the supplied DC1200 Copper Colorimeter Test Kit, test copper concentration of the water. Also measure and document water temperature at each test site.

Distal Site Flushing

Establishing a flushing protocol is a critical component of any water disinfection management protocol. Special attention should be paid to high risk and low flow areas where excessive water age is undesirable and can lead to conditions that promote bacterial growth.

Monthly

Flow Cell Cleaning

Exchange active flow cells for spare flow cells. Cleaning is required to ensure even ion distribution and concentration levels. If cleaning cannot be performed on-site, the flow cells can be sent to LiquiTech for cleaning.

Quarterly

Copper Silver ICP testing

Testing by a third party lab is required for every identified test site. Confirm distal sites with Infection Prevention/Control personnel to ensure that critical patient care areas are being tested.

Bacterial/Legionella Testing

Testing by a CDC Elite certified lab is essential to verify that the LiquiTech system is working properly. If Legionella tests are positive, contact a LiquiTech Engineer immediately.

Annually

Recalibration of Flow Cells

Re-spacing or "Recalibration" is essential to extending the life of the electrodes. Recalibration also decreases the life-cycle cost of the system.

Electrode Replacement As-Needed (Depending on Electrode Consumption)

At the end of the electrodes' life-cycle, it will become necessary to replace the consumable copper silver bars to maintain the effectiveness of the system.

LiquiTech Engineer Evaluation

A LiquiTech Engineer will perform an annual site visit to examine LiquiTech systems and to meet with facility staff, including Infection Prevention, Facility Management, and Engineers, to answer any questions

*All test sites are required to be on the same sites for each test (Handheld, Copper Silver)

**All test results are required to be communicated back to LiquiTech. *Send results via e-mail to (reporting@LiquiTech.net) or fax to (630.693.0505) for engineering review.*

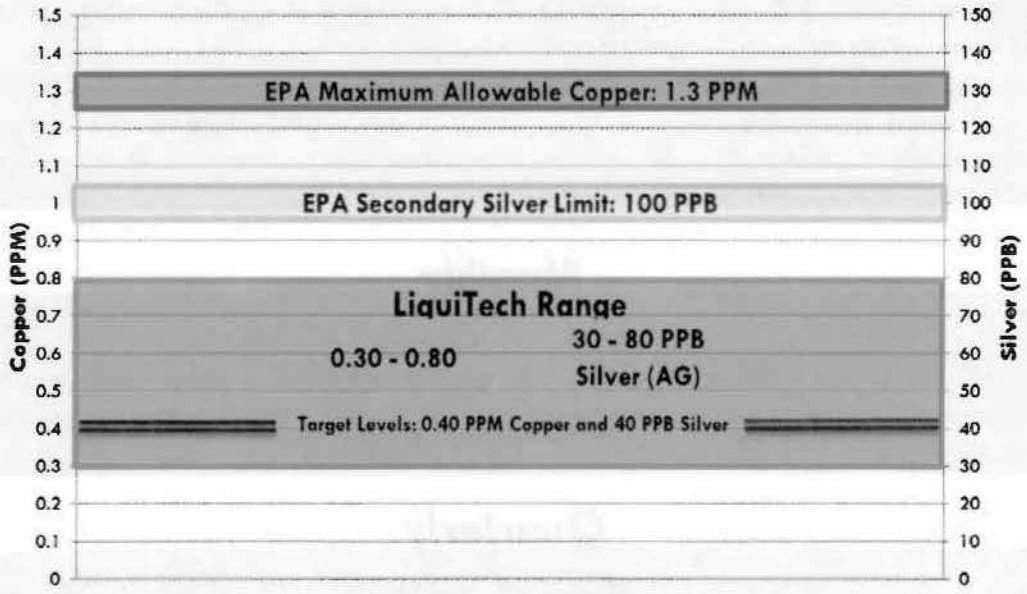
LiquiTech Environmental Solutions | 421 Eisenhower Lane South, Lombard, IL 60148 | (800) 635-7873 | info@liquitech.net

LIQUITECH
ENVIRONMENTAL SOLUTIONS

System Copper Silver Targeted Range

Understanding Copper Silver ICP Test Results

Based on historical research, the following copper silver levels are recommended for a facility's water system:



Copper Silver Level Chart

If the copper silver ICP test results you receive for each sample tested from your facility's water system are not within the recommended target range, you must verify that proper maintenance, flushing, and sampling protocols are being followed.

NOTE: *The copper silver levels in your facility's water system can be affected by several variables, including system set points and status; water usage; sampling protocol; flow meter condition; water quality; maintenance; flow cell condition; time of day; and base line levels*

Legionella Validation

LiquiTech recommends periodic Legionella testing to verify performance and efficacy. Testing frequency and quantity should be commensurate with the facility's level of "Risk" population and in accordance with the goals and objectives of facility management. Insufficient ion levels and distribution challenges due to construction/renovation, low occupancy, etc. can contribute to conditions where Legionella can reoccur.

In the event that a facility experiences any positive results, contact LiquiTech immediately at (800) 635-7873 for response and remediation procedures.

{MASTER LABEL}

LIQUIDATOR®
Electronic Ionization System

In preliminary laboratory tests, [(this product)] [(LIQUIDATOR® Electronic Ionization System)] Liquitech Products has been shown to inactivate pure cultures of LDB. However, the ability of this formulation to control the growth of, or inactivate, LDB in operating water systems exposed to ultraviolet light, organic material, other microbial contamination, and aeration, has not been documented in a field setting. These preliminary findings also do not address the problem of long-term preventive maintenance of these water systems. **This product is a secondary treatment for potable water, and is unacceptable for disinfecting sewage, raw or grey water.**

Active Ingredients:
Copper (as metallic).....70.00%
Silver (as metallic).....30.00%
Total:.....100.00%

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE [BACK, SIDE, REAR] PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

Manufactured by:
LiquiTech, Inc.
421 Eisenhower Lane South
Lombard, IL 60148
(800) 635-7873
Telephone (800) 635-7873 (24 hours per day, 7 days a week, 365 days a year)
Website: www.liquitech.net

EPA Reg. No. 68250-XXX
EPA Est. No. 68250-IL-001

Net Weight:

PRECAUTIONARY STATEMENTS
Do not allow contamination of water by cleaning of equipment or disposal of waste.

DIRECTIONS FOR USE
It is a violation of federal law to use this product in a manner inconsistent with its labeling.

When used as directed, this device provides effective control of *Legionella [pneumophila] (ATCC 33153)* in commercial potable water supplies. This device consists of a flow cell containing copper and silver electrodes that releases copper and silver ions into the water when electrically stimulated by a companion electronic controller that continually senses water flow rate and consumption in the water system. See *Essential System Service* sheet~~Operation and Installation Manual~~ for additional use directions.

Copper Testing

Weekly Copper Testing

Once the Liquidator® Electronic Ionization System has been fully commissioned, the level of copper in the water at designated sample sites before peak water consumption has begun should have a targeted level of 0.4 PPM copper, resulting in a target level of 40 PPB silver. These levels are optimal for controlling *Legionella (ATCC 33153).*

The actual copper to silver ratio may vary depending on ~~electrode composition,~~ water chemistry, ambient or transient copper in the water supply, and other conditions. To ensure that proper copper levels are being maintained, the water should be tested at least once each week, preferably early in the morning before water consumption has begun. A log sheet is provided in the back of this manual to help you track and record test results.

Testing Copper Levels

A Copper Test Kit is supplied with each Liquidator® Electronic Ionization System. The kit is designed to measure copper levels between 0 and 5.0 PPM (parts-per-million).

Testing Tips

- Samples should always be collected in a clean glass or polyethylene bottle.
- Samples should be analyzed as soon as possible after collection.
- Discard tubes that are badly scratched.
- Observe the one year shelf life recommendations for the testing reagent (see *Copper Reagent Shelf Life* section below).
- Protect the reagent and other test kit components from sunlight, extreme heat, and extreme cold. The entire kit is best stored in a drawer or cabinet at normal room temperature (65° to 75°F).
- Never put wet tubes in the colorimeter.

Testing

1. Collect a 50 ml sample in the Water Sample Collecting Bottle.
2. Rinse a Colorimeter Tube with sample water.
3. Fill the rinsed Colorimeter Tube to the 10 ml line with the sample water. Cap and wipe dry.

4. Insert the filled Colorimeter Tube into the Colorimeter's light chamber, being sure to align the index line with the arrow on the meter. Close the lid. This tube is the blank zero.
5. Push the "Read" button to turn the meter on. Press the "Zero" button and hold it for two seconds until "bLA" is displayed. Release the button to take a zero reading (0 PPM)
6. Remove the Colorimeter Tube and add 5 drops of Copper Reagent.
7. Cap the tube and invert to mix. Wipe tube dry.
8. Insert the Colorimeter Tube into the Colorimeter's light chamber, being sure to align the index line with the arrow on the meter. Close the lid.
9. Push the "Read" button. Record the results as PPM copper on the log sheet.

➡ **NOTE:** *If the test reading displays Er2, copper levels are above 5 PPM. Repeat the procedure on a diluted sample and multiply the result by the appropriate dilution factor. See the DC-1200 Colorimeter Instruction Manual for more information.*

Copper Reagent Shelf Life

The Copper Reagent supplied with your test kit has a shelf life of approximately one year. You can determine the production date of the reagent by looking at the six digit lot number on the label of the bottle. The first two numbers are the week of production; the third number year of production.

➡ **EXAMPLE:** *Lot #457126 has a production date of the 45th week ("45") and a production year of 2007 ("7"). Therefore, the reagent should be used by the 45th week of 2008 (approximately November 2008)*

➡ **IMPORTANT:** *There are no visible indications when the reagent gets too old or has deteriorated. However, test results using reagent that is past the recommended shelf life may show a lower copper level than is actually present.*

STORAGE AND DISPOSAL

PESTICIDE STORAGE: Store the flow cell in a cool, dry place away from children.
PESTICIDE DISPOSAL: Non-reusable product. When spent, do not attempt to disassemble, recharge, or refill flow cells. Return spent flow cells to LiquiTech, Inc. for reconditioning and recycling.

LIMITED WARRANTY AND DISCLAIMER

The directions for use of this product are believed to be adequate and must be followed carefully, but it is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result due to such factors as power or utility interruption, incorrect use or application, or water stagnation, all of which are beyond the control of LiquiTech Inc.

LiquiTech customers will develop a flushing protocol and create supporting log sheets for documentation and reporting.

To the extent consistent with applicable law, LiquiTech, Inc., the manufacturer, or the seller of this product shall not be liable for consequential, special, or indirect damages resulting from the use, handling, application, storage, or disposal of this product or for damages in the nature of penalties, and the buyer and the user waive any right that they may have to such damages.

No agent or employee of LiquiTech, Inc., or the seller is authorized to amend the terms of this warranty disclaimer or the product's label or to make a presentation or recommendation different from or inconsistent with the approved label of this product.

The system is warranted for five years against defects in manufacturing, workmanship, and materials when installed and maintained in accordance with the manufacturer's recommendations. Only approved

LiquiTech parts can be used in order not to void both LiquiTech warranty and EPA product registration required by law.]

~~The entire *LIQUITECH*® electronic [ionization] system including control module, flow cell and interconnecting wire are ETL (UL-508 and 1081) certified and CSA C22.2 No. 14-95 and 108-M89 certified. *LIQUITECH*® products conform to the European Union EMC Directive 89/336/EEC and Low Voltage Directive 72/23/EEC and bear the CE Mark. All *LIQUITECH*® flow cell wetted parts are NSF Standard 61 OR~~

[The system is warranted for five years against defects in manufacturing, workmanship, and materials when installed and maintained in accordance with the manufacturer's recommendations.

Only approved LIQUITECH® parts can be used in order not to void both LiquiTech warranty and EPA product registration required by law.]

NOTICE TO BUYER

Purchase of this product does not confer any rights under U.S. Patent Nos. 6,126,820 and 6,325,944, and other pending patent applications governing this product or the use thereof in countries outside of the United States.

~~LiquiTech, Inc.~~
~~421 Eisenhower Lane South~~
~~Lombard, IL 60148~~
~~Telephone (800) 635-7873 (24 hours per day, 7 days a week, 365 days a year)~~

Made In USA

Liquitech Equipment Global Certification & Approvals

The entire *LIQUITECH*® electronic [ionization] system including control module, flow cell and interconnecting wire are ETL (UL-508 and 1081) certified and CSA C22.2 No. 14-95 and 108-M89 certified. *LIQUITECH*® products conform to the European Union EMC Directive 89/336/EEC and Low Voltage Directive 72/23/EEC and bear the CE Mark. All *LIQUITECH*® flow cell wetted parts are NSF Standard 61 approved. Liquitech products are protected by U.S. Patent Nos. 6, 136, 820 and 6,325,944, and toehr pending patent applications. Liquitech Copper-Silver Alloy electrodes and associated equipment comply with all conditions and requirements as contained in BRL K14010-2/01 (Assessment The Kiwa certificate with product certificate for *Legionella* with alternate Techniques, Part 2: Electrochemical Techniques: copper/silver and anodic oxidation). CTGB *Legionella* Control Certification number 13431 N.

The entire system, electronic control unit, flow cells, and interconnecting wire are ETL (UL-1081 and UL-508), and CSA C22.2 Nos. 14-95 and 108-M89 certified.

LiquiTech's copper silver ionization system is EPA registered and has efficacy data on file with the EPA demonstrating the control of *Legionella* in potable water systems. Liquitech systems are compliant with the US EPA regulations and policy including the Office of Water, the Safe Drinking Water Act (40 CFR 141), and the Office of Pesticides.

[OPTIONAL LABEL **CLAIMS]**

- According to the EPA *Legionella: Human Health Criteria Document*, copper-silver ionization systems, along with other measures, are very useful in preventing the recolonization of *Legionella* in most water distribution systems.
- All Liquitech systems are manufactured in the USA, which means they embody a higher standard of certification and demonstrate proven efficacy against *Legionella.*
- "Closed Loop Proportional Control" technology capable of adjusting itself to produce the precise amount of ionization needed and ensures no under or over ionization.
- Control mode allows you to program the system to automatically change output current on different days and time periods.
- Effective against *Legionella sp (ATCC 33153).*
- Effective against [preventing, controlling] *Legionella.*
- Effectively controls [*Legionella*] with an absolute minimum of attention and maintenance.
- Intended for use in hospitals, healthcare facilities, nursing homes, hotel and commercial buildings.
- It is this protection that makes the Liquidator® system superior
- *Legionella* are killed rather than suppressed.
- Liquid [ionization] system.
- *LIQUITECH*® systems provide protection.
- *LIQUITECH'S* ionization system maintains consistent levels, providing protection and prevention of contamination.
- LiquiTech, Inc.'s technology provides a proven solution with a 15-year track record.
- Liquitech strives to redefine American quality and expertise by developing superior technology.
- ~~Daily~~Periodic testing ensures that [this product] maintains copper and silver levels within with Primary and Secondary Drinking Water Regulations in accordance with the Safe Drinking Water Act.
- Patented Technology capable of handling any water conditions.
- [Prevents, controls] [*Legionella pneumophila*] in both hot and cold water. The accurate dose rate control system maintains precise ions levels, providingprotection and [prevention] of recontamination.
- The [biocidal] action is attributable to the positively charged copper and silver ions.
- The electronic control units incorporate remote management and control previously stated adjustment capabilities.
- The ion emissions of the Liquidator® ionization process are cationic, surface active, and a potent biocide.
- The *LIQUITECH*® patented technology is an effective method of controlling [*Legionella*] in water systems.
- The *LIQUITECH*® system, coupled with engineering and customer satisfaction staff, clearly makes it an effective method of controlling [*Legionella*] in domestic water distribution systems.
- The *LIQUITECH*® electronic copper/silver ionization process is an effective method of controlling [*Legionella*] in domestic water distribution systems.

- The key to the system is the controlled release of copper and silver ions into the domestic water distribution system.
- The system's efficacy is validated by continuous management and adjustment as well as periodic independent laboratory water sample testing.
- The rate at which these ions are released is monitored and maintained by the controller's built in microcomputer which is monitored remotely over the internet.
- These ionic emissions are cationic, surface-active, and a potent biocide.
- This product is intended for the purification of water which has previously been treated in accordance with the Safe Drinking Water Act (SDWA), such as that provided by municipal water treatment facilities.

~~LIQUIDATOR®~~
~~Electronic Ionization System~~

~~Operation and Installation Manual~~

LIQUITECH® LIQUIDATOR®
Series Electronic
Controller Unit

LIQUITECH®
Model QLTF Flow Cell

~~LiquiTech, Inc.~~
~~421 Eisenhower Lane South~~
~~Lombard, IL 60148~~
~~Phone: (800) 635-7873~~
~~Fax: 630-693-0505~~
~~Website: www.liquitech.net~~

Essential System Service

~~Table of Contents~~

General Directions

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Before using this product read the entire label and Operation and Instruction Manual.

The Liquidator® Electronic Ionization System uses a copper/silver ionization process to control *Legionella (ATCC 33153)* in domestic water distribution systems. This biocidal action is attributable to the positively charged copper and silver ions which form electrostatic bonds with negatively charged sites on the microorganism cells walls. These electrostatic bonds create stresses which in turn lead to distorted cell wall permeability, reducing the normal intake of life sustaining nutrients. The system maintains target levels of copper and silver below EPA allowable levels for drinking water.

Device Components

The Liquidator® Electronic Ionization System consists of four basic components: Controller, Flow Cell, Flow Meter, and Remote Environmental Management System (REMS).

The Controller is a wall mounted, microprocessor-based device capable of controlling output current levels. The Controller applies a direct current across the Flow Cell's electrodes, stimulating the controlled release of ions. The Liquidator® Electronic Ionization System is designed to operate on either 100-120 VAC or 220-240 VAC, 50/60 Hz. The Controller incorporates a digital read out which displays current operating parameters and a keypad from which all system programming is performed. The Controller incorporates two fail-safe (energized) dry contact alarms. The alarm circuits will open when an alarm condition is detected or power is lost.

The Flow Cell is installed in the recirculation loop and houses the copper/silver electrodes which release ions into the water distribution systems. The Flow Cell is constructed from high temperature, high pressure, schedule 80 CPVC.

The Flow Meter detects the amount of hot water consumption. The current output of the Controller is automatically adjusted up or down based on the amount of water flowing through the Flow Meter.

~~The Remote Environmental Management System bi-directional communication collects, logs, and graphs important operational data as well as providing "Alarm" notifications of malfunctions which can be corrected remotely.~~

Installation

~~The Liquidator® Electronic Ionization System is compatible with most building management systems and is equipped with remote internet Management and control capabilities. This device effectively controls *Legionella (ATCC 33153)* with an absolute minimum of attention and maintenance. See the equipment sizing table below to determine unit model number.~~

Flow Rate GPM	Max 75% - 80%	PPM Copper
2	S50	.56
5	S100	.44
9	S150	.41
17	S300	.41
25	S500	.45
45	S750	.40
60	S1000	.4

~~The Controller should be installed in an indoor, sheltered area away from direct sources of heat, sunlight and moisture. Power should be supplied to the controller using an electrical circuit with~~

~~sufficient amperage to accommodate the system's peak current draw. The system can be programmed to automatically change output current on different days and time periods.~~

~~The Controller also automatically adjusts the output voltage from 0 to 100 volts DC to compensate for changes in water conductivity and flow cell electrode condition to maintain consistent copper/silver ion levels.~~

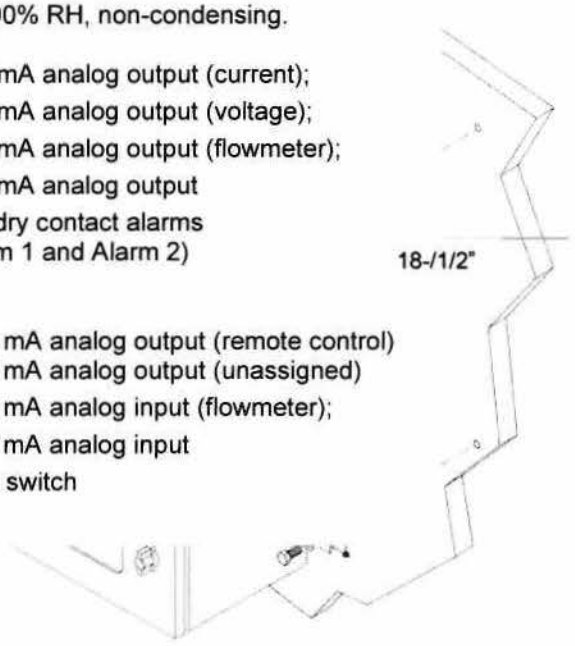
Enclosure: Metal powder-coated cabinet with 3/16 inch tempered glass inset on door. Meets NEMA 12 requirements.

Operating Temp.: 32° to 131°F (0° to 55°C).

Operating Humidity: 5 to 90% RH, non-condensing.

Signal Outputs: 4-20 mA analog output (current);
4-20 mA analog output (voltage);
4-20 mA analog output (flowmeter);
4-20 mA analog output
Two dry contact alarms (Alarm 1 and Alarm 2)

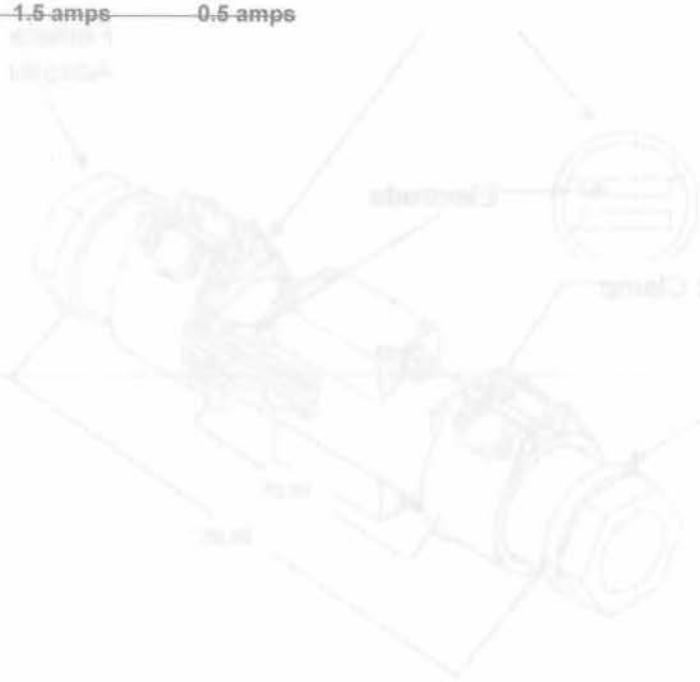
Signal Inputs: 4-20 mA analog output (remote control)
4-20 mA analog output (unassigned)
4-20 mA analog input (flowmeter);
4-20 mA analog input
Flow switch



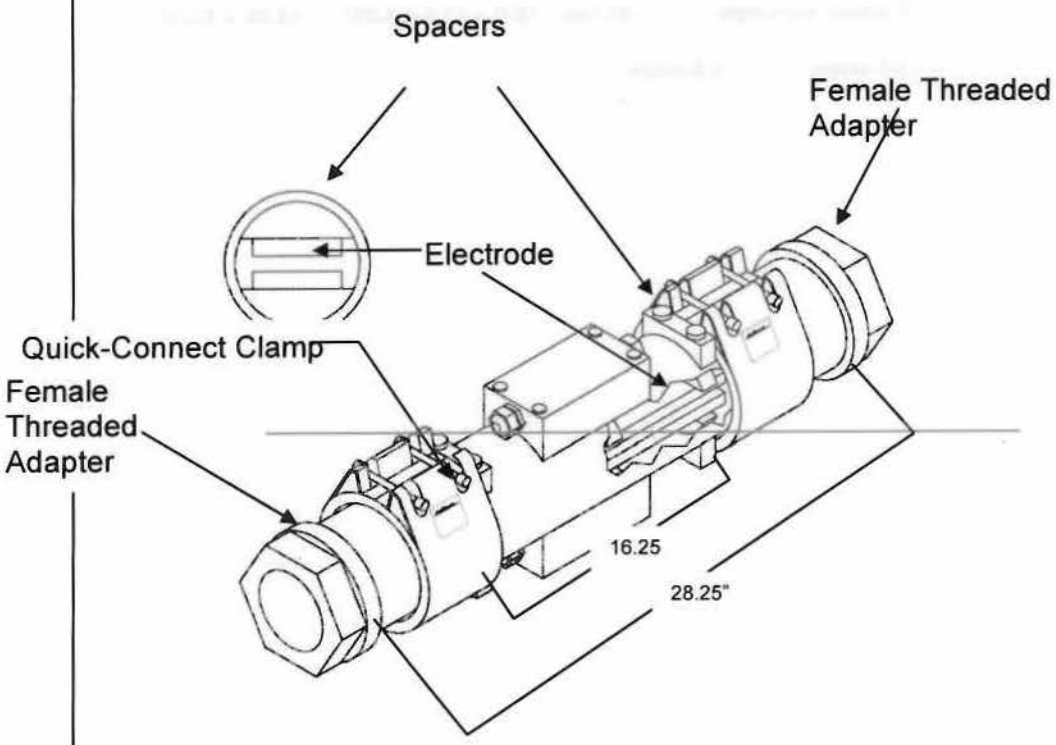
~~Electrical Data: 120/240 VAC, 50/60 Hz., single-phase; factory configured. DC output voltage for all models is 0 to 100 volts (self-adjusting).~~

						(H x W X D)
~~Model~~	~~AC Power~~	~~Current Draw~~	~~DC Output~~	~~Weight~~	~~Cabinet~~	~~Mounting Holes~~
~~S1000~~	~~120 VAC~~	~~16 amps~~	~~10.0 amps~~	~~58 lbs.~~	~~18.5 x 13.5 x 7.25"~~	~~14.75 x 14.75"~~
	~~240 VAC~~	~~8 amps~~	~~10.0 amps~~			
~~S750~~	~~120 VAC~~	~~16 amps~~	~~7.5 amps~~	~~58 lbs.~~	~~18.5 x 13.5 x 7.25"~~	~~14.75 x 14.75"~~
	~~240 VAC~~	~~8 amps~~	~~7.5 amps~~			
~~S500~~	~~120 VAC~~	~~8 amps~~	~~5.0 amps~~	~~55 lbs.~~	~~18.5 x 13.5 x 7.25"~~	~~14.75 x 14.75"~~
	~~240 VAC~~	~~4 amps~~	~~5.0 amps~~			
~~S300~~	~~120 VAC~~	~~8 amps~~	~~3.0 amps~~	~~51 lbs.~~	~~18.5 x 13.5 x 7.25"~~	~~14.75 x 14.75"~~

	240 VAC	4 amps	3.0 amps			
S150	120 VAC	3 amps	1.5 amps	24 lbs.	15.0 x 12.5 x 6.25"	11.25 x 13.75"
	240 VAC	1.5 amps	1.5 amps			
S100	120 VAC	3 amps	1.0 amps	24 lbs.	15.0 x 12.5 x 6.25"	11.25 x 13.75"
	240 VAC	1.5 amps	1.0 amps			
S50	120 VAC	3 amps	0.5 amps	24 lbs.	15.0 x 12.5 x 6.25"	11.25 x 13.75"
	240 VAC	1.5 amps	0.5 amps			



~~The Flow Cell is easy and inexpensive to install on existing plumbing systems. The Controller applies a direct current across the Flow Cell's electrodes, stimulating the controlled release of copper and silver ions into the domestic water distribution system. The Flow Cell features a quick-connect clamp which simplifies Flow Cell removal for inspection and cleaning.~~



~~Model:~~	~~QF14 4/4~~	~~QF7 4/4~~
~~Cell Length:~~	~~16.25"~~	~~12.25"~~
~~Overall Length:~~	~~28.25"~~	~~24.25"~~
~~Cell Diameter (ID):~~	~~4"~~	~~4"~~
~~Threaded Adapter:~~	~~3"~~	~~3"~~
~~Electrodes:~~	~~2~~	~~2~~
~~Electrode Length:~~	~~14"~~	~~7"~~

~~Cell Weight: 24 lbs. 14 lbs.~~

~~Overall Weight: 39 lbs. 30 lbs.~~

~~Working Pressure:~~
~~@ 120°F 208 PSI 208 PSI~~
~~@ 150°F 150 PSI 150 PSI~~
~~@ 180°F 80 PSI 80 PSI~~

~~Materials: Schedule 80 CPVC (all models)~~

~~Connection: Quick-connect, powder-coated 304 stainless steel clamp connections standard. Must be tightened to torque of 10 ft. lbs.; torque wrench and 6 mm hex bit provided~~

The Flow Meter contains a "Closed Loop Proportional Control" which is capable of adjusting itself to produce the precise amount of ionization needed and ensures no under or over ionization.

Copper Testing

Weekly Copper Testing

Once the Liquidator® Electronic Ionization System has been fully commissioned, the level of copper in the water at designated sample sites before peak water consumption has begun should have a targeted level of 0.4 PPM copper, resulting in a target level of 40 PPB silver. These levels are optimal for controlling *Legionella (ATCC 33153)*.

The actual copper to silver ratio may vary depending on electrode composition, water chemistry, ambient or transient copper in the water supply, and other conditions. To ensure that proper copper levels are being maintained, the water should be tested at least once each week, preferably early in the morning before water consumption has begun. A log sheet is provided in the back of this manual to help you track and record test results.

Testing Copper Levels

A Copper Test Kit is supplied with each Liquidator® Electronic Ionization System. The kit is designed to measure copper levels between 0 and 5.0 PPM (parts-per-million).

Testing Tips

- Samples should always be collected in a clean glass or polyethylene bottle.
- Samples should be analyzed as soon as possible after collection.
- Discard tubes that are badly scratched.
- Observe the one year shelf life recommendations for the testing reagent (see *Copper Reagent Shelf Life* section below).

- Protect the reagent and other test kit components from sunlight, extreme heat, and extreme cold. The entire kit is best stored in a drawer or cabinet at normal room temperature (65° to 75°F).

- Never put wet tubes in the colorimeter.

Testing

1. Collect a 50 ml sample in the Water Sample Collecting Bottle.
2. Rinse a Colorimeter Tube with sample water.
3. Fill the rinsed Colorimeter Tube to the 10 ml line with the sample water. Cap and wipe dry.
4. Insert the filled Colorimeter Tube into the Colorimeter's light chamber, being sure to align the index line with the arrow on the meter. Close the lid. This tube is the blank zero.
5. Push the "Read" button to turn the meter on. Press the "Zero" button and hold it for two seconds until "bLA" is displayed. Release the button to take a zero reading (0 PPM)
6. Remove the Colorimeter Tube and add 5 drops of Copper Reagent.
7. Cap the tube and invert to mix. Wipe tube dry.
8. Insert the Colorimeter Tube into the Colorimeter's light chamber, being sure to align the index line with the arrow on the meter. Close the lid.
9. Push the "Read" button. Record the results as PPM copper on the log sheet.

➡ **NOTE:** *If the test reading displays Er2, copper levels are above 5 PPM. Repeat the procedure on a diluted sample and multiply the result by the appropriate dilution factor. See the DC-1200 Colorimeter Instruction Manual for more information.*

Copper Reagent Shelf Life

The Copper Reagent supplied with your test kit has a shelf life of approximately one year. You can determine the production date of the reagent by looking at the six digit lot number on the label of the bottle. The first two numbers are the week of production; the third number year of production.

➡ **EXAMPLE:** *Lot #457126 has a production date of the 45th week ("45") and a production year of 2007 ("7"). Therefore, the reagent should be used by the 45th week of 2008 (approximately November 2008)*

➡ **IMPORTANT:** *There are no visible indications when the reagent gets too old or has deteriorated. However, test results using reagent that is past the recommended shelf life may show a lower copper level than is actually present.*

Troubleshooting

The following table summarizes the symptoms and causes of common operational problems, along with the action necessary to correct the situation.

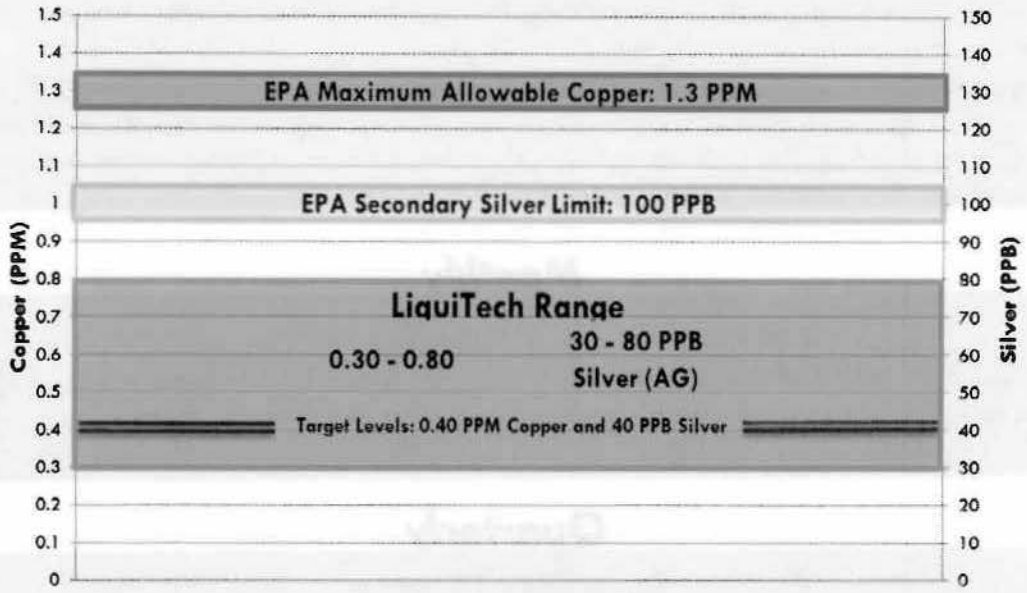
Problem/Symptom	Cause	Corrective Action
Alarm: Open Circuit appears on display. Alarm 2 activated.	Circuit to flow cell open. Blown fuse.	Check for loose or broken connections; correct as required and reset alarm. Replace fuse as required and reset alarm.
Alarm: Short Circuit appears on display. Alarm 1 activated.	Electrodes shorting due excessive scaling or debris in Flow Cell. Short at electrode terminal on Flow Cell.	Clean Flow Cell as required. Determine cause of short; correct as required.
Alarm: High Voltage appears on display. Alarm 1 activated.	System voltage has exceeded setpoint.	Increase alarm setpoint as required. Check electrodes for excessive scaling; clean as required. Check electrodes for excessive wear; replace Flow Cell as required.
Alarm: Flowmeter appears on display. Alarm 2 activated.	No change in flow for programmed period.	Check for proper flow; restore flow or replace flowmeter as required.
Error: To: IO Board Com appears on display. Alarm 2 activated.	Main computer cannot establish communication with IO board.	Consult factory.
Error: To: Power Board Com appears on display. Alarm 2 activated.	Main computer cannot establish communication with power board.	Consult factory.
System can't achieve or maintain desired amperage.	Excessive scaling on electrodes. Excessive electrode wear.	Clean as required. Replace flow cell as required.
System can't achieve or maintain desired copper concentration level.	Copper setpoint too low. High water usage. Excessive scaling on electrodes. Excessive electrode wear.	Increase copper setpoint. Adjust system as required. Clean as required. Replace flow cell as required.
Display blank, power lamp off, Alarms 1 and 2 activated.	Loss of power.	Restore power.
Time/date setup screen appears when system is powered up	Dead or faulty battery	Replace battery, reset date/time, and restart system.

LIQUITECH
ENVIRONMENTAL SOLUTIONS

System Copper Silver Targeted Range

Understanding Copper Silver ICP Test Results

Based on historical research, the following copper silver levels are recommended for a facility's water system:



Copper Silver Level Chart

If the copper silver ICP test results you receive for each sample tested from your facility's water system are not within the recommended target range, you must verify that proper maintenance, flushing, and sampling protocols are being followed.

NOTE: *The copper silver levels in your facility's water system can be affected by several variables, including system set points and status; water usage; sampling protocol; flow meter condition; water quality; maintenance; flow cell condition; time of day; and base line levels*

Legionella Validation

LiquiTech recommends periodic Legionella testing to verify performance and efficacy. Testing frequency and quantity should be commensurate with the facility's level of "Risk" population and in accordance with the goals and objectives of facility management. Insufficient ion levels and distribution challenges due to construction/renovation, low occupancy, etc. can contribute to conditions where Legionella can reoccur.

In the event that a facility experiences any positive results, contact LiquiTech immediately at (800) 635-7873 for response and remediation procedures.

LIQUITECH

ENVIRONMENTAL SOLUTIONS

Essential System Service

Weekly

Handheld Copper Testing

Using the supplied DC1200 Copper Colorimeter Test Kit, test copper concentration of the water. Also measure and document water temperature at each test site.

Distal Site Flushing

Establishing a flushing protocol is a critical component of any water disinfection management protocol. Special attention should be paid to high risk and low flow areas where excessive water age is undesirable and can lead to conditions that promote bacterial growth.

Monthly

Flow Cell Cleaning

Exchange active flow cells for spare flow cells. Cleaning is required to ensure even ion distribution and concentration levels. If cleaning cannot be performed on-site, the flow cells can be sent to LiquiTech for cleaning.

Quarterly

Copper Silver ICP testing

Testing by a third party lab is required for every identified test site. Confirm distal sites with Infection Prevention/Control personnel to ensure that critical patient care areas are being tested.

Bacterial/Legionella Testing

Testing by a CDC Elite certified lab is essential to verify that the LiquiTech system is working properly. If Legionella tests are positive, contact a LiquiTech Engineer immediately.

Annually

Recalibration of Flow Cells

Re-spacing or "Recalibration" is essential to extending the life of the electrodes. Recalibration also decreases the life-cycle cost of the system.

Electrode Replacement As-Needed (Depending on Electrode Consumption)

At the end of the electrodes' life-cycle, it will become necessary to replace the consumable copper silver bars to maintain the effectiveness of the system.

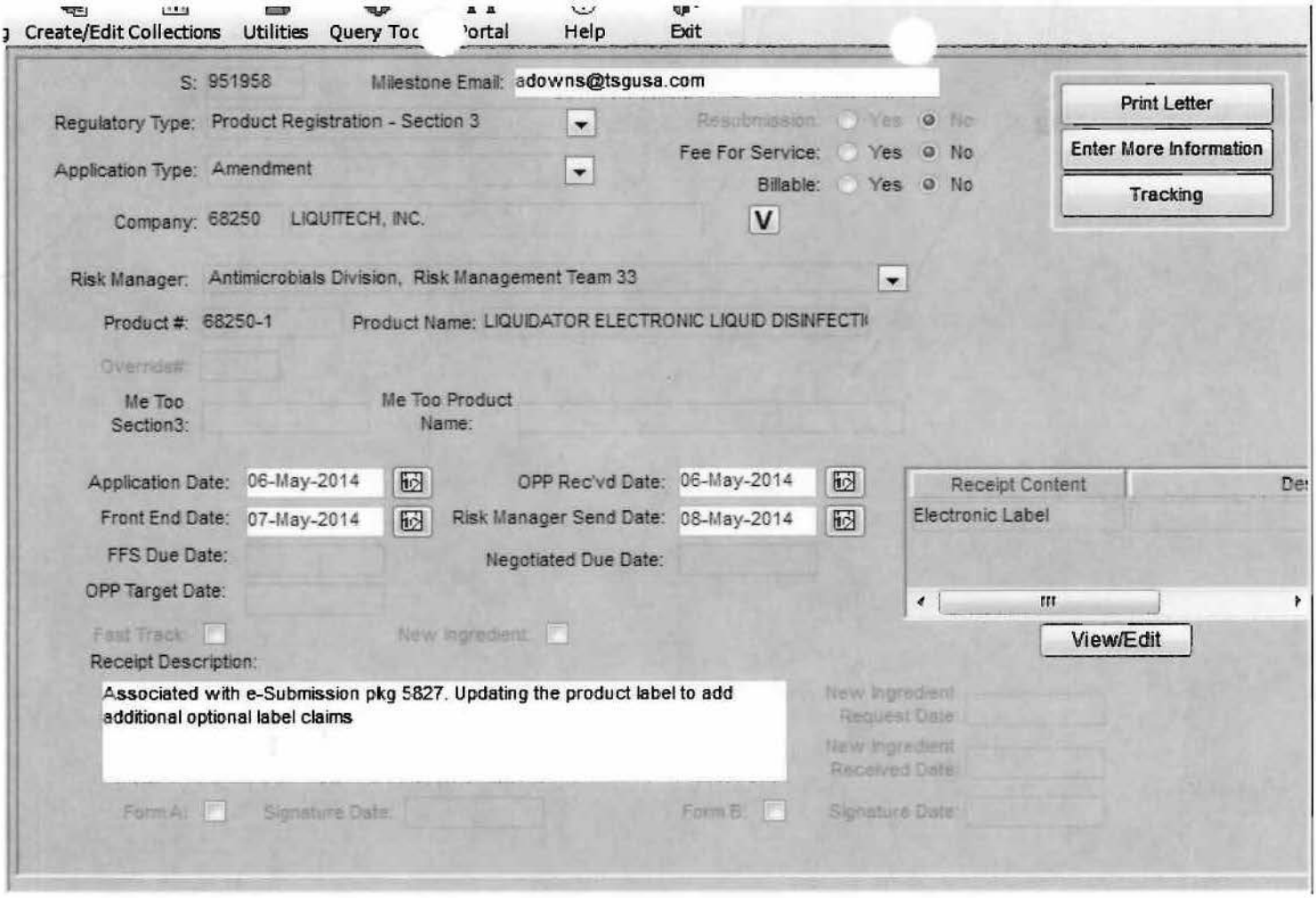
LiquiTech Engineer Evaluation

A LiquiTech Engineer will perform an annual site visit to examine LiquiTech systems and to meet with facility staff, including Infection Prevention, Facility Management, and Engineers, to answer any questions

*All test sites are required to be on the same sites for each test (Handheld, Copper Silver)

**All test results are required to be communicated back to LiquiTech. *Send results via e-mail to (reporting@LiquiTech.net) or fax to (630.693.0505) for engineering review.*

LiquiTech Environmental Solutions | 421 Eisenhower Lane South, Lombard, IL 60148 | (800) 635-7873 | info@liquitech.net



302

KML

DUE 4-Aug-14

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

May 8, 2014

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

M ARK R DESANTO
L QUITECH, INC.
4:1 EISENHOWER LANE SOUTH
L OMBARD, IL 60148-

P RODUCT NAME: LIQUIDATOR ELECTRONIC LIQUID DISINFECTION SYSTEM
C OMPANY NAME: LIQUITECH, INC.
O PP IDENTIFICATION NUMBER:
E PA FILE SYMBOL: 68250-1
E PA RECEIPT DATE: 05/06/14

S UBJECT: RECEIPT OF AMENDMENT

D EAR REGISTRANT:

The Office of Pesticide Programs has received your application for an amendment a d it has passed an administrative screen for completeness.

During the initial screen we determined that the application appears to qualify for fast tr ck review. The package will now be forwarded to the Product Manager for review to d termine its acceptability for fast track status.

If you have any questions, please contact Antimicrobials Division, Risk M anagement Team 33, at (703) 308-6341.

Sincerely,

Front End Processing Staff
Information Services Branch
Information Technology & Resources Management Division

Fee for Service {951958W~

This package includes the following

- ○ New Registration
- ◉ Amendment

☐ Studies? ☐ Fee Waiver?

☐ volpay % Reduction: ___

for Division

- ◉ AD
- ○ BPPD
- ○ RD

Risk Mgr. 33

Receipt No. S- 951958

EPA File Symbol/Reg. No. 68250-1

Pin-Punch Date: 5/6/2014

☑ This item is NOT subject to FFS action.

Action Code:

Requested:

Granted:

Amount Due: $ _____

Parent/Child Decisions:

☐ Inert Cleared for Intended Use ☐ Uncleared Inert in Product

Reviewer: Mail Team 2 Date: 05-08-14

Remarks: FQPA 302

E-SUBMISSION

Please read instructions on reverse side before completing form. Form Approved. OMB No. 2070-0060. Approval expires 05-31-98

EPA	United States Environmental Protection Agency Washington, DC 20460	☐ Registration ☒ Amendment ☐ Other	OPP Identifier Number

Application for Pesticide – Section I

1. Company/Product Number	2. EPA Product Manager	3. Proposed Classification
68250-1	**Marshall Swindell**	☒ None ☐ Restricted
4. Company/Product (Name) **Liquitech, Inc.** / *Liquidator Electronic Liquid Disinfection System*	PM# **33**	

5. Name And Address Of Applicant *(Include ZIP Code)*

Liquitech, Inc.
421 Eisenhower Lane South
Lombard, IL 60148-5096

☐ *Check if this is a new address*

6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to:

EPA Reg. No. _____

Product Name _____

Section II

☒ Amendment – Explain below.
☐ Resubmission in response to Agency letter dated _____
☐ Notification – Explain below.
☐ Final Printed labels in response to Agency letter dated _____
☐ "Me Too" Application.
☐ Other – Explain Below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Fast Track Amendment to update the product label to add additional optional label claims and to remove the existing Operation and Installation Manual and replace it with an abbreviated Technical Data Sheet titled, "Essential System Service." Please direct all correspondence to Abigail Downs at adowns@tsgusa.com or 202-828-8992.

Section III

1. Material This Product Will Be Packaged In:

Child Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
☐ Yes* ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Metal ☐ Plastic ☐ Glass ☐ Paper ☐ Other (Specify) _____
**** Certification must be submitted***	If "Yes" Unit Packaging wgt. / No. per Container	If "Yes" Unit Packaging wgt. / No. per Container	

3. Location of Net Contents Information	4. Size(S) Retail Container	5. Location of Label Directions
☐ Label ☐ Container		☐ On Label ☐ On Labeling accompanying product

6. Manner in Which Label is Affixed to Product ☐ Lithographed ☐ Pager glued ☐ Stenciled ☐ Other _____

Section IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Abigail Downs, Technology Sciences Group, Inc.	**Regulatory Consultant**	**(202) 828-8992**

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received **(Stamped)**

2. Signature	3. Title	
Abigail T. Downs	**Regulatory Consultant to Liquitech, Inc.**	
4. Typed Name **Abigail T. Downs**	5. Date **May 6, 2014**	

EPA Form 8570-1 (Rev. 8-94) Previous editions are obsolete

Technology Sciences Group Inc.
1150 18th Street, NW, Suite 1000
Washington, D.C. 20036
Direct: (202) 828-8992
Fax: (202) 872-0745
E-Mail: adowns@tsgusa.com

Submitted Electronically

Marshall Swindell, PM33
Office of Pesticide Products (7510P)
U.S. Environmental Protection Agency
One Potomac Yard (South Building)
2777 South Crystal Drive
Arlington, VA 22202-4501

May 6, 2014

Re: Fast Track Amendment to Revise the Operation and Installation Manual and Add Optional Label Claims to Product Label
Company Name: LiquiTech, Inc.
Product Name: *Liquidator Electronic Liquid Disinfection System*
EPA Registration No.: 68250-1

Dear Marshall,

Technology Sciences Group, Inc., on behalf of LiquiTech, Inc., is submitting the enclosed fast track label amendment to update the product label to add additional optional label claims and to remove the existing Operation and Installation Manual and replace it with an abbreviated Technical Data Sheet titled, "Essential System Service."

The current Operation and Installation Manual was developed by Liquitech during the application process. Since approval, it has become apparent to Liquitech that the stamped Operation and Installation Manual does not adequately reflect the needs of the registrant and their customers. Liquitech developed the new "Essential System Service" sheet that will accompany each product as a label insert. This sheet provides details for the user for the operation of the product, but removes the non-FIFRA installation information, such as the directions for installing and updating the computer software. As this information is non-FIFRA, we feel like it would be burdensome to both Liquitech and to EPA to need to provide a copy of that information every time the computer software was revised. All FIFRA language for the operation of the product is included in the label and associated "Essential System Service" sheet. The label has retained the Copper Testing language from the Operation and Installation Manual in the updated Directions for Use section.

Please find the following included in support of this submission:

- 8570-1, Application for Pesticide;
- One redline copy of the product label;
- Three clean copies of the product label.

If you have any questions or require additional information or clarification, please do not hesitate to contact at (202) 828-8992 or via e-mail: adowns@tsgusa.com .

Sincerely,

Abigail T. Downs
Regulatory Consultant to
Liquitech, Inc.

Technology Sciences Group Inc.
1150 18th Street, NW, Suite 1000
Washington, D.C. 20036
Direct: (202) 828-8992
Fax: (202) 872-0745
E-Mail: adowns@tsgusa.com

Abigail T. Downs
Regulatory Consultant

April 29, 2013

Marshall Swindell
Antimicrobial Division (7504P)
Office of Pesticide Products
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

Re: Response to Conditional Notice of Registration Request for Additional Data
Company Name: LiquiTech, Inc.
Product Name: *Liquidator Electronic Ionization System*
EPA Registration No.: 68250-1

Dear Mr. Swindell,

Technology Sciences Group, Inc., on behalf of LiquiTech, Inc., is submitting this response to the Conditional Notice of Registration issued to LiquiTech on April 18, 2013. In the Notice of Registration the Agency requested that Storage Stability and Corrosion Characteristics data be submitted to the Agency within one year from the date of the Notice of Registration. Please see enclosed the wavier rationales submitted to the Agency as MRID 478458-01 with the initial application on September 3, 2009. Per the enclosed Product Chemistry review from Earl Goad dated January 4, 2010, the enclosed waivers are acceptable and LiquiTech does not need to generate any additional data.

Please see the following documents enclosed in support of this response:

- 8570-1, Application for Pesticide Form;
- Page 14 from MRID 478458-01;
- January 4, 2010 Product Chemistry Review.

If you have any questions or require additional information or clarification, please do not hesitate to contact me at (202) 828-8992 or via e-mail: adowns@tsgusa.com.

Sincerely,

Abigail T. Downs

Regulatory Consultant to
LiquiTech, Inc.

Please read instructions on reverse side before completing form. Form Approved. OMB No. 2070-0060. Approval expires 05-31-98

EPA	United States Environmental Protection Agency Washington, DC 20460	☐ Registration ☐ Amendment ☒ Other	OPP Identifier Number

Application for Pesticide – Section I

1. Company/Product Number	2. EPA Product Manager	3. Proposed Classification
68250-1	**Marshall Swindell**	☒ None ☐ Restricted
4. Company/Product (Name) **Liquitech, Inc. / Liquidator Electronic Ionization System**	PM# **33**	

5. Name And Address Of Applicant *(Include ZIP Code)*

Liquitech, Inc.
421 Eisenhower Lane South
Lombard, IL 60148-5096

☐ *Check if this is a new address*

6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to:

EPA Reg. No. _____

Product Name _____

Section II

☐ Amendment – Explain below.
☒ Resubmission in response to Agency letter dated 4-18-2013
☐ Notification – Explain below.
☐ Final Printed labels in response to Agency letter dated _____
☐ "Me Too" Application.
☐ Other – Explain Below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of Storage Stability and Corrosion Characteristics data in response to the Conditional Notice of Registration issued April 18, 2013.

Section III

1. Material This Product Will Be Packaged In:

Child Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
☐ Yes* ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Metal ☐ Plastic ☐ Glass ☐ Paper ☐ Other (Specify) _____
***Certification must be submitted**	If "Yes" Unit Packaging wgt. / No. per Container	If "Yes" Unit Packaging wgt. / No. per Container	

3. Location of Net Contents Information	4. Size(S) Retail Container	5. Location of Label Directions
☐ Label ☐ Container		☐ On Label ☐ On Labeling accompanying product

6. Manner in Which Label is Affixed to Product ☐ Lithographed ☐ Pager glued ☐ Stenciled ☐ Other _____

Section IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Abigail Downs, Technology Sciences Group, Inc.	**Regulatory Consultant**	**(202) 828-8992**

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received **(Stamped)**

2. Signature	3. Title	4. Typed Name	5. Date
Abigail T. Downs	**Regulatory Agent to Liquitech, Inc.**	**Abigail T. Downs**	**April 29, 2013**

EPA Form 8570-1 (Rev. 8-94) Previous editions are obsolete

OPPTS Guideline 830.6303 Physical State

Ag30 Alloy is a metallic solid.

OPPTS Guideline 830.6314 Oxidation/Reduction; Chemical Incompatibility

Ag30 Alloy is relatively inert under normal environmental conditions. When weathered, the surface of *Ag30 Alloy* can turn light green, indicating oxidation. *Ag30 Alloy* is a reductant, and can be oxidized (and dissolved) by contact with strong, oxidizing mineral acids. *Ag30 Alloy* is stable when in contact with reducing agents.

OPPTS Guideline 830.6315 Flammability

Ag30 Alloy is a metallic alloy of copper and silver, and as such has no capacity to initiate or support combustion.

OPPTS Guideline 830.6316 Explodability

Ag30 Alloy is a copper and silver metallic alloy, and as such has no explosive capacity.

OPPTS Guideline 830.6317 Storage Stability

Waiver of this requirement is requested. *Ag30 Alloy* contains the elements copper and silver, which are known to be stable for millennia.

OPPTS Guideline 830.6319 Miscibility

Waiver of this requirement is requested. *Ag30 Alloy* is a solid, metallic alloy of copper and silver, and cannot be applied as a mixture with any fluid.

OPPTS Guideline 830.6320 Corrosion Characteristics

Waiver of this requirement is requested. From the guideline, the purpose of the requirement is to ascertain if a test material is corrosive to its packaging material. *Ag30 Alloy* is an alloy of copper and silver that is a) stable and inherently noncorrosive, and b) plumbed directly into potable water lines with no packaging.

Product ingredient source information may be entitled to confidential treatment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EPA United States Environmental Protection Agency Office of Pesticide Programs

Antimicrobials Division (AD)

January 4, 2010

DP BARCODE: 370522

MRID : 478458-01, 479483-01

SUBJECT: Liquidator Electronic Liquid Disinfection System (Ag30 Alloy)
(Name of Product)

REG. NO.: 68250-R

DOCUMENT TYPE: Product Chemistry Review

Manufacturing-use [ ] OR End-use Product [X]

INGREDIENTS:

PC Code(s)	CAS Number	Active Ingredient(s):
025501	7440-50-8	Copper (metallic)
072501	7440-22-4	Silver (metallic)

TEST LAB/Producer: [redacted]

SUBMITTER: Liquitech, Inc.

GUIDELINE: Product Chemistry Group A & B

ORGANIZATION: AD\PSB\CTT

REVIEWER: Earl Goad

APPROVER: Karen P. Hicks

APPROVED DATE: 1/04/2010

COMMENT: The material tested for use as an electrode in this system is a metal alloy called "Ag30 Alloy"

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EPA United States Environmental Protection Agency Office of Pesticide Programs

Antimicrobials Division (AD)

January 4, 2010

MEMORANDUM

SUBJECT Product Chemistry Review for EPA File Symbol: 68250-R
Product Name: Liquidator Electronic Liquid Disinfection System
DP Barcode: 370522

CODE: (A540) New Product Registration

DATE DUE: December 25, 2009

FROM: Earl Goad, Biologist
Chemistry and Toxicology Team
Product Science Branch
Antimicrobials Division (7510P)

THRU: Karen Hicks, Team Leader
Chemistry and Toxicology Team
Product Science Branch
Antimicrobials Division (7510P)

TO: Marshall PM#33/ Martha Terry
Regulatory Management Branch I
Antimicrobials Division (7510P)

Applicant: Liquitech, Inc.

PRODUCT FORMULATION FROM LABEL:

PC Codes	Active Ingredient(s):	% by wt.
025501	Copper (metallic)	70.0
072501	Silver (metallic)	30.0
	Total:	100.0

BACKGROUND:

The product consists of an electrolytic flow cell containing copper and silver electrodes (which are made from Ag30 Alloy) that release ions into water. This product is promoted for use in preventing and controlling *Legionella pneumophila* in commercial water distribution systems that have been treated previously in accordance with the Safe Drinking Water Act. The product is for use in commercial and hospital or medical environments. The data package included a Confidential Statement of Formula (CSF) for the basic formulation (dated January 8, 2009) and version 1 of a product label dated January 8, 2010. The product is produced by one of three possible producers by an integrated formulation system (i.e., the product contains an active ingredient that is not an EPA-registered product).

The electronic controller unit and the flow cell are produced by the registrant (Liquitech, Inc.). The Ag30 Alloy electrodes used in the flow cell are [redacted] by the producers listed in box #2 of the CSF. Likewise, the laboratory analyses submitted to support this product chemistry submission were performed by the electrode producers.

Though the electrode is composed of an alloy of copper and silver, copper has been chosen as the primary analyte for purposes of preliminary analysis, five batch analysis, and storage stability. The concentration of silver is determined by subtraction.

A primary review of these original studies was conducted by the Product Science Branch (PSB)/Antimicrobials Division (AD) contractor: Computer Sciences Corporation (CSC). The Chemistry and Toxicology Team (CTT) conducted a secondary review to assure that the CSFs, studies, citations or data waivers meet EPA/OPP criteria, and is responsible for this memorandum.

FINDINGS:

CSF

1. The nominal concentrations of the active ingredients of these electrodes are in accordance with the product label.
2. EPA standard certified limits are used and accurately calculated.
3. The confidential statement of formula dated September 3, 2009 is fully acceptable

Label

The label is found to be acceptable with comments. Pages 13 and 14 of the label describes a procedure for weekly measurement of copper levels in order to "ensure that proper copper levels are maintained". As the efficacy of the unit for the intended purpose does relate to optimal ionized metal levels this is exceedingly important. However CTT notes that aside from the standard used in the procedure there is no mention of any quality control samples being used to assure that these measurements are accurate or precise. CTT recommends that periodic quality control samples be run and logged along with the test samples.

Table B:
Physical and Chemical Characteristics (Series 830, Group B)

Physical/Chemical Properties*	Acceptance of Data	Value or Qualitative Description	MRID No.
830.6302 Color	NA	*[Not required for end-use products.]*	
830.6303 Physical State	A	The product is a metallic solid.	478458-01
830.6304 Odor	NA	*[Not required for end-use products.]*	
830.6313 Stability to Normal and Elevated Temperatures, Metals, and Metal Ions	NA	*[Not required for end-use products.]*	
830.6314 Oxidation/ Reduction; Chemical Incompatibility	A	*Ag30 Alloy* (which is used in the Liquidator® Electronic Liquid Disinfection System) is relatively inert under normal environmental conditions. When weathered, the surface of *Ag30 Alloy* can turn light green, indicating oxidation. *Ag30 Alloy* is a reductant, and can be oxidized (and dissolved) by contact with strong, oxidizing mineral acids. *Ag30 Alloy* is stable when in contact with reducing agents.	478458-01
830.6315 Flammability/ Flame Extension	A	*Ag30 Alloy* is a metallic alloy of copper and silver and, as such, has no capacity to initiate or support combustion.	478458-01
830.6316 Explodability	A	*Ag30 Alloy* is a copper and silver metallic alloy and, as such, has no explosive capacity.	478458-01
830.6317 Storage Stability	Waiver acceptable	*Ag30 Alloy* contains the elements copper and silver, which are known to be stable for millennia. [Waiver requested.]	478458-01
830.6319 Miscibility[1]	Waiver acceptable	*Ag30 Alloy* is a solid, metallic alloy of copper and silver and cannot be applied as a mixture with any fluid. [Waiver requested.]	478458-01
830.6320 Corrosion Characteristics	Waiver acceptable	*Ag30 Alloy* is an alloy of copper and silver that is (1) stable and inherently non-corrosive; and (2) plumbed directly into potable water lines with no packaging. [Waiver requested.]	478458-01
830.6321 Dielectric Breakdown Voltage	Waived	*Ag30 Alloy* is intended for use as part of an electrolytic flow cell plumbed into a potable water system. Product is an electrically conductive solid	478458-01

Physical/Chemical Properties*	Acceptance of Data	Value or Qualitative Description	MRID No.
830.7000 pH[2]	Waiver acceptable	*Ag30 Alloy* is a solid, metallic alloy of copper and silver that is neither soluble in nor miscible with water. A pH representing any property of *Ag30 Alloy* cannot be determined. [Waiver requested.]	478458-01
830.7050 UV/Visible Absorption	NA	*[Not required for end-use products.]*	
830.7100 Viscosity	Waiver acceptable	*Ag30 Alloy* is an alloy of copper and silver that is solid under all conceivable environmental conditions, so viscosity is irrelevant. [Waiver requested.]	478458-01
830.7200 Melting Point/Melting Range	A	The melting point of elemental copper is 1085°C. The melting point of silver is 962°C. From the Ag-Cu phase diagram, the melting point of *Ag30 Alloy* (which contains 70% copper and 30% silver) is 940°C. The Metals Handbook: Metallography, Structures and Phase Diagrams, 8th Edition, was referenced.	478458-01
830.7220 Boiling Point/Boiling Range	NA	*[Not required for end-use products.]*	
830.7300 Density/Relative Density/Bulk Density	A	The density of elemental copper is 8.96 g/cm^3. The density of silver is 10.5 g/cm^3. By interpolation, the density of *Ag30 Alloy* is estimated to be ~9.4 g/cm^3. The Handbook of Chemistry & Physics, 74th Edition, was referenced.	478458-01
830.7370 Dissociation Constants in Water	NA	*[Not required for end-use products.]*	
830.7550/830.7560/830.7570 Partition Coefficient	NA	*[Not required for end-use products.]*	
830.7840/830.7860 Water Solubility	NA	*[Not required for end-use products.]*	
830.7950 Vapor Pressure	NA	*[Not required for end-use products.]*	

Explanation: A=acceptable; N=not acceptable (i.e., item was submitted but is not acceptable); NA=technically not applicable (i.e., not required); G=data gap (i.e., item was not submitted but is required); U=requires upgrading (i.e., item is unacceptable but upgradeable); W=waived; E=EPA estimate.

* Provide brief description, e.g., color – yellow or property value, e.g., density 1.25 g/cc. Unless otherwise indicated, the property should be at 25°C.

[1]If product is an emulsifiable liquid
[2]If product is dispersible with water

CONCLUSION:

The Basic CSF and the product chemistry group A and B are found to be acceptable. CTT recommends additions to the periodic monitoring of copper levels by the user to include quality control samples.

FOR OFFICIAL USE ONLY

FILE SYMBOL	
REGISTRATION NO.	68250-R

CONFIDENTIAL STATEMENT OF FORMULA ENCLOSED

DATE SUBMITTED	SUBMITTED BY (✓)	
	APPLICANT	BASIC SUPPLIER
SEP - 3 2009		

Do Not Write Comments, Formula, or Parts of Formula on This Envelope

NOTE

It shall be unlawful—for any person to use for his own advantage or to reveal, other than to the Secretary, or officials or employees of the United States Department of Agriculture or other Federal agencies, or to the courts in response to a subpoena, or to physicians, and in emergencies to pharmacists and other qualified persons, for use in the preparation of antidotes, in accordance with such directions as the Secretary may prescribe, any information relative to formulas of products acquired by authority of Section 4 of the "Federal Insecticide, Fungicide, and Rodenticide Act."

Pages 52-53 Confidential Statement of Formula may be entitled to confidential treatment